

Occupational and Worksite Norms and Attitudes about Smoking Cessation

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Abstract: The relationship of worksite and occupational norms about smoking to workers' attitudes toward smoking cessation was studied in a defined population. From smokers identified in a self-administered questionnaire circulated to all employees of 10 worksites in suburban Minneapolis, 447 smokers were randomly selected and interviewed. Attitudes and social norms about smoking cessation were compared by occupation and worksite using analysis of covariance, controlling for age, sex, and education. Similarly, the relationships of social norms to attitudes were examined using multiple regression analysis. Interest in quitting smoking, confidence in the ability to quit, and coworker support of prior quit attempts

were equally pervasive among workers from blue collar and white collar occupations. Yet substantial differences between worksites in attitudes and norms about smoking cessation suggest the importance of the unique social milieu of individual worksites. Of particular importance is the impact of coworker discouragement of prior quit attempts, which varied across worksites and was directly related to confidence in the ability to quit and the desire to seek formal help in future quit attempts. These findings point to the relevance of intervention programs aimed at changing worksite norms about smoking and smoking cessation. (*Am J Public Health* 1986; 76:544-549.)

Introduction

In the face of widespread knowledge of the health risks of cigarette smoking, a growing number of smokers express the desire to quit smoking. About 90 per cent of current cigarette smokers have tried or want to quit smoking completely.^{1,2} Within broad occupational groups, interest in quitting is high among white collar and blue collar workers alike.* However, Kasl³ concluded from a review of intervention studies that persons employed in lower status jobs have greater success with quitting immediately after treatment but lower success rates at follow-up. Investigations generally suggest that professional, managerial, and technical workers have higher sustained quit rates than do blue collar workers. Similar occupational differences are reflected in smoking prevalence rates: relatively fewer white collar workers are smokers compared to blue collar workers.⁴⁻⁶

In part, these occupational differences are indicative of different norms affecting behavior in social groups. For many, smoking is a form of social behavior that contributes to one's identity.^{7,8} Reference groups, such as the work group, prescribe social norms and define appropriate and deviant behavior.^{9,10} The perception of social prescriptions, or subjective norms, influences attitudes toward smoking as well as the behavior itself.¹¹ Thus, having smoking friends and associates tends to make quitting more difficult,^{12,13} while smokers whose friends, coworkers, and family are former smokers are more likely to succeed in their attempts to quit smoking.^{3,14,15}

This study examines worksite and occupational differences in coworker support during prior quit attempts, coworker discouragement during prior quit attempts, and the perceived prevalence of smoking among coworkers. Three attitudes toward quitting are also examined: interest in quitting smoking, confidence in the ability to quit smoking, and desire to seek help in future attempts to quit. It is hypothesized that these subjective norms and attitudes will

differ by both occupation and worksite; that subjective norms supporting smoking cessation will favorably influence attitudes about smoking cessation; that interest in quitting smoking will be highest among smokers having few coworkers who smoke, and who have received much support but little discouragement from coworkers during prior quit attempts; that smokers working with few other smokers and having coworkers who support their quit attempts will be most confident of their ability to quit smoking; and that smokers lacking a supportive social environment for quitting will feel the greatest need to seek formal assistance for quitting.

Methods

Data Collection

Of 27 worksites in a Minneapolis suburb contacted about the study, 10 were selected on the basis of size, percentage of full-time employees, and interest. The worksites represent diverse industries and range in size from 120 to 1,050 (Table 1). A brief, one-page self-administered screening survey was circulated to all employees of the 10 worksites to identify current smoking status and willingness to be interviewed. Response rates to this screening survey ranged from 69 per cent to 95 per cent with the overall rate being 80 per cent (Table 1).

To assure sufficient exposure to the work environment, only smokers who worked at least 30 hours per week at the study worksites were included in the survey sampling frame (N = 987). Of these, 73 per cent (N = 723) of smokers were willing to be interviewed, compared to 82 per cent of ex-smokers and 77 per cent of those who never smoked. Among smokers, those willing to be interviewed were more likely to report they planned to quit in the next 12 months compared to those unwilling to be interviewed, although no differences were found in the number of quit attempts made in the last three months. Smokers' willingness to be interviewed did not differ by worksite, but blue collar smokers were less likely than white collar smokers to be willing to be interviewed.

A random sample of 447 smokers, stratified by worksite, was selected to be interviewed in person. Personal interviews were conducted at the worksite for approximately 30 minutes during work hours in Spring 1984 by interviewers trained in a standardized interviewing protocol. The variables examined here were selected empirically from a group of theoretically defined variables.

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Measures

From responses to questions on the respondent's main occupation and main job duties, occupations were coded into 15 categories according to the 1970 Census of Population descriptions of occupations.¹⁶ In the analyses presented here, occupations were collapsed into three job categories:

- professionals and managers (including executives, administrators, and managers, professionals, and technicians);
- sales and clerical workers (including sales and related occupations, and administrative support including clerical);
- blue collar workers (including laborers, general service work, transportation occupations, machine operators, assemblers, and inspectors, protective service, and precision production, craft, and repair).

To assess the social norms specific to the worksite, respondents (N = 243) who had tried to quit smoking while working for their current employer were asked a series of questions about their coworkers' responses to their quit attempts. Principal components factor analysis was used to explain the maximum amount of variance, and orthogonal rotation was employed to assure the independence of the factors formed. Two discrete factors were formed, which explained 55 per cent of the total variance. Factor-based scores were used to form each index.¹⁷ *Coworker support during quit attempts* includes the frequency (0–3 scales) with which coworkers complimented quit attempts, helped the respondent avoid situations offering temptations to smoke, helped the respondent think of substitutes for smoking, and refrained from smoking in the presence of the respondent. *Coworker discouragement during quit attempts* includes the frequency (0–3 scales) with which coworkers offered the respondent a cigarette during a quit attempt, made the respondent feel guilty for not succeeding with a quit attempt, and expressed doubt about the respondent's ability to quit smoking.

In addition to the two empirically defined social norms, the workers' *perceived prevalence of smoking among coworkers* was assessed according to the responses to the question, "What percentage of your coworkers would you say are smokers?"

Three attitudes about smoking cessation also were measured. Current *interest in quitting* is rated on an 11-point scale where zero means not at all interested in quitting and 10 means very interested in quitting smoking. *Confidence in the ability to quit* is an index of two items that formed one factor when analyzed using principal components factor analysis. The index includes the extent to which respondents disagree (1–5 scale) with the statement, "I'm afraid that even if I quit smoking for a while, I'd end up smoking again sooner or later" and the extent to which they agreed (1–5 scale) that, "Anyone can quit smoking if they really want to." *Desire to seek help* is an index also formed on the basis of factor analysis results. This index expresses the likelihood (1–5 scale) that respondents would seek formal help if they were going to quit in the future, and the likelihood (1–5 scale) that they would attend a quit smoking class if one were offered at work during work hours. A high score on this scale means the respondent is very interested in receiving help to quit smoking.

Data Analysis

Analysis of covariance was used to compare subjective norms and attitudes about cessation by worksite and occu-

TABLE 1—Participating Worksites: Number of Employees, Type of Business, and Prevalence of Smoking

Worksite	Number of Employees	Type of Business	Response Rate	Smoking Prevalence
A	349	Education	75	15
B	758	General industrial machinery (excluding plant)	79	21
C	436	City government	95	30
D	257	Machinery sales and service	95	31
E	120	Photographic equipment and sales	79	35
F	1050	Telecommunications	79	37
G	234	Mail order hardware	82	40
H	560	Metal castings	74	41
I	155	Utility and truck equipment	73	44
J	230	Screw machine products	69	53
TOTAL	4149		80	33

pation, controlling for age, sex, and education. Since the cell frequencies did not permit two-way analysis of covariance including both worksites and occupational categories together, F tests for the deletion of variables¹⁸ were used to examine worksite differences controlling for occupation and occupational differences controlling for worksite, adjusting for age, sex, and education. The relationships of the three attitudes toward cessation to the perceived prevalence of smoking among coworkers and coworker discouragement and support of quitting were examined using multiple regression analysis, again controlling for age, sex, and education. BMDP statistical software was used in conducting all analyses.¹⁹

Results

Of the 278 males and 169 females interviewed, 39 per cent worked in blue collar occupations, 33 per cent in clerical or sales, and 28 per cent in professional or managerial positions. Ninety-five per cent of respondents had at least a high school education; 20 per cent had completed college. Age of the respondents ranged from 19 to 67 years, with a mean of 35.8 years. Eighty-seven per cent of these smokers had tried at least once to quit smoking, and of those, 83 per cent had quit for a week or more at least once in the past.

As shown in Table 1, 33 per cent of all responding employees were current smokers, although this percentage ranged from 15 per cent to 53 per cent among the 10 worksites. The prevalence of smoking in these 10 worksites, adjusting for age and sex, varied by occupation: 41.9 per cent among blue collar workers, 32.5 per cent among sales and clerical workers, and 22.4 per cent among professionals and managers.

Table 2 illustrates worksite differences in the distribution of occupations. In several worksites, blue collar workers are most numerous, while other sites are dominated by professionals and managers or sales and clerical workers. The prevalence of smoking at the worksite and the per cent of blue collar workers are highly correlated ($r = .83$). Due to the low cell frequencies in some worksites, it is not possible to control directly for occupational differences in analysis of covariance. Therefore, the means presented in Tables 3 and 4 are adjusted only for age, sex, and education, and F tests for the deletion of variables¹⁸ were used to test for worksite differences controlling for occupation, and occupational differences controlling for worksite. Interactions between worksite and occupation were also tested.

TABLE 2—Distribution of Occupations of Smokers by Worksite

Worksite	Blue Collar		Clerical/Sales		Professional/Managerial	
	%	N	%	N	%	N
A	13.0	3	34.8	8	52.2	12
B	4.5	3	37.9	25	57.6	38
C	40.6	28	31.9	22	27.5	19
D	33.3	14	45.2	19	21.4	9
E	47.6	10	14.3	3	38.1	8
F	39.7	25	34.9	22	25.4	16
G	32.4	11	58.8	20	8.8	3
H	69.5	41	10.2	6	20.3	12
I	40.5	15	45.9	17	13.5	5
J	69.7	23	21.2	7	9.1	3
TOTAL	38.7	173	33.3	149	28.0	125

TABLE 3—Occupational Comparisons of Smokers using Analysis of Covariance Mean Values Adjusted for Age, Sex, and Education and 95% Confidence Intervals

Norms and Attitudes about Quitting among Smokers	Occupation		
	Blue Collar	Sales-Clerical	Professional/Managerial
Coworker Support (N=213; Range=0-12)	3.4 ± .6 (N=93)	3.2 ± .9 (N=50)	3.7 ± .7 (N=70)
Coworker Discouragement (N=217; Range=0-9)	3.2 ± .5 (N=93)	2.4 ± .7 (N=52)	2.7 ± .6 (N=72)
Perceived Smoking Prevalence (N=441)	46.9 ± 3.9 (N=172)	39.3 ± 4.2 (N=146)	32.2 ± 4.7 (N=123)
Interest in Quitting (N=444; Range=0-10)	5.8 ± .5 (N=172)	6.2 ± .6 (N=149)	6.1 ± .6 (N=123)
Confidence in Quitting (N=435; Range=2-10)	6.8 ± .3 (N=169)	7.1 ± .3 (N=146)	6.6 ± .4 (N=120)
Desire for Help (N=440; Range=2-10)	6.1 ± .4 (N=172)	6.5 ± .4 (N=148)	6.3 ± .5 (N=120)

As shown in Table 3, controlling for age, sex, and education, the perceived prevalence of smoking among coworkers varied by occupation, parallel to survey findings. When worksite differences were controlled, occupational differences in the perceived prevalence of smoking remained. However, contrary to the hypothesis, no occupational differences were found in coworker support or discouragement during prior quit attempts, interest in quitting smoking, confidence in the ability to quit, or desire to seek help for future quit attempts. The relatively restricted range of observed scores of coworker support and discouragement could account in part for the failure to find significant differences in these variables.

Despite these similarities across occupational groups, substantial worksite differences were found in coworker discouragement during prior quit attempts, perceived prevalence of smoking among coworkers, interest in quitting smoking, and desire to seek help in future attempts to quit smoking, again controlling for age, sex, and education (Table 4). Coworker support during prior quit attempts and confidence in the ability to quit did not differ by worksite. Even controlling for occupation using F tests for the deletion of variables, worksite differences were observed in coworker discouragement, the perceived prevalence of smoking among coworkers, interest in quitting, and the desire to seek help in future quit attempts.

Worksite and occupational differences in the perceived prevalence of smoking among coworkers were explored further by examining the discrepancy between the perceived

smoking prevalence among coworkers and the worksite smoking prevalence, as measured by the baseline survey. A high smoking prevalence among coworkers relative to smoking prevalence by site or occupation would suggest that smokers are aggregating rather than being evenly distributed within their worksite or occupation. Controlling for age, sex, and education, worksite differences in this discrepancy variable were found. That is, smokers are more likely to cluster together in some worksites than in others. Also, controlling for age, sex, and education, the difference between smoking prevalence among coworkers and overall smoking prevalence varied by occupation, such that smokers working in professional and managerial positions were most likely to aggregate.

Regression analyses presented in Table 5 test the relationships of coworker support and discouragement during quit attempts and the perceived prevalence of smoking among coworkers to the three attitudes about smoking cessation: interest in quitting, confidence in the ability to quit, and desire to seek help. These regression analyses control for age, sex, and education. The low amounts of variance explained (R^2) are not surprising in light of the numerous other factors influencing these attitudes toward smoking cessation, such as personality characteristics, smoking habits, and family attitudes toward smoking.^{12,13,20}

Contrary to the hypothesis that interest in quitting would be positively related to subjective norms supporting quitting, Table 5 indicates that those most interested in quitting report the most discouragement from coworkers during past quit attempts. Perhaps smokers highly interested in quitting are especially sensitive to coworker discouragement and thus are more likely to report discouragement. The positive relationship of social support to interest in quitting approaches significance, suggesting that perceived coworker support during past quit attempts may contribute to current interest in quitting. The perceived prevalence of smoking among coworkers, age, sex, and education were not related to interest in quitting smoking when all other variables are considered.

Confidence in the ability to quit smoking, a factor important to actual success with cessation,²⁰ was hypothesized to increase when subjective norms support quitting. As hypothesized, persons receiving considerable discouragement from their coworkers had less confidence in their ability to quit smoking (Table 5). Social support from coworkers and the perceived prevalence of smoking among coworkers were not related to confidence in the ability to quit, however. Those most confident of their ability to quit tended to be highly educated and were more likely to be male than female.

Finally, it was anticipated that smokers lacking a work environment supportive of quitting smoking would report a greater desire to seek formal help in future quit attempts. Persons who received substantial discouragement from coworkers during prior quit attempts were found to be most interested in seeking structured help in future quit attempts, as shown in Table 5. This relationship between coworker discouragement and the desire to seek help remained even after controlling for individual interest in quitting or confidence in the ability to quit, suggesting the potency of the worksite environment. Conducting this regression analysis separately for the three occupational categories indicated that the relationship of coworker discouragement to desire to seek help was strong for blue collar workers but relatively weak for the two white-collar job categories. Desire to seek help did not appear to be related to variations in support from

TABLE 4—Worksite Comparisons of Smokers using Analysis of Covariance Mean Values Adjusted for Age, Sex, and Education and 95% Confidence Intervals

Norms and Attitudes about Quitting among Smokers	Worksites									
	A	B	C	D	E	F	G	H	I	J
Coworker Support (N=213; Range=0–12)	3.4 ± 1.7 (N=13)	2.8 ± 1.1 (N=27)	3.4 ± .9 (N=42)	3.6 ± 1.1 (N=24)	3.6 ± 2.0 (N=8)	4.2 ± 1.1 (N=27)	2.8 ± 1.7 (N=11)	3.9 ± 1.0 (N=37)	2.9 ± 1.6 (N=13)	2.8 ± 1.7 (N=11)
Coworker Discouragement (N=217; Range=0–9)	1.8 ± 1.4 (N=13)	3.1 ± .9 (N=28)	1.9 ± .7 (N=44)	3.6 ± .9 (N=26)	2.3 ± 1.6 (N=8)	2.8 ± .9 (N=26)	1.5 ± 1.4 (N=12)	3.9 ± .8 (N=36)	2.8 ± 1.3 (N=13)	3.7 ± 1.4 (N=11)
Perceived Smoking Prevalence (N=441)	36.3 ± 10.0 (N=22)	24.6 ± 5.6 (N=65)	36.7 ± 5.6 (N=69)	40.5 ± 7.0 (N=42)	37.9 ± 10.6 (N=18)	45.6 ± 5.8 (N=61)	36.8 ± 7.9 (N=34)	51.2 ± 6.0 (N=59)	43.1 ± 7.5 (N=37)	52.9 ± 7.9 (N=34)
Interest in Quitting (N=444; Range=0–10)	5.8 ± 1.4 (N=23)	6.3 ± .8 (N=66)	6.8 ± .8 (N=68)	5.6 ± 1.0 (N=42)	6.7 ± 1.4 (N=20)	6.4 ± .8 (N=62)	4.5 ± 1.1 (N=34)	6.1 ± .8 (N=59)	6.3 ± 1.0 (N=37)	4.8 ± 1.1 (N=34)
Confidence in Quitting (N=435; Range=2–10)	7.0 ± .8 (N=23)	6.9 ± .5 (N=62)	6.5 ± .5 (N=66)	6.6 ± .6 (N=42)	6.3 ± .8 (N=19)	6.9 ± .5 (N=61)	7.0 ± .6 (N=34)	7.0 ± .5 (N=59)	7.4 ± .6 (N=37)	6.5 ± .7 (N=32)
Desire for Help (N=440; Range=2–10)	5.4 ± 1.0 (N=23)	6.4 ± .6 (N=64)	6.7 ± .6 (N=68)	6.7 ± .7 (N=42)	5.4 ± 1.0 (N=20)	6.3 ± .6 (N=61)	5.2 ± .8 (N=34)	6.3 ± .6 (N=58)	5.8 ± .7 (N=37)	7.1 ± .8 (N=33)

TABLE 5—The Relationships of Attitudes toward Smoking Cessation to Coworker Norms: Unstandardized Regression Coefficients (and Standard Errors)

Coworker Norms and Demographic Characteristics	Interest in Quitting	Confidence in the Ability to Quit	Desire to Seek Help
Age	0.019 (.417)	1.046 (.274)	-0.124 (.338)
Sex*	0.555 (.022)	-0.028 (.015)	-0.004 (.018)
Education†	0.222 (.154)	0.212 (.102)	-0.062 (.126)
Support	0.120 (.068)	0.010 (.045)	0.080 (.055)
Discouragement	0.173 (.077)	-0.127 (.051)	0.160 (.063)
Per Cent Coworkers Smoke	0.009 (.008)	-0.006 (.005)	-0.008 (.007)
R ²	.0658	.1325	.0545
N	210	205	210

*Male = 1; Female = 0.
†Coded on a 6-point scale from less than high school to advanced degree.

coworkers during previous quit attempts, the per cent of one's coworkers who smoke, or the demographic variables.

To further examine the relationship between coworker discouragement and desire to seek help, both of which vary by worksite, the adjusted means by worksite (from Table 4) are plotted in Figure 1. A linear relationship is suggested, indicating that worksite mean values of desire to seek help rise with increasing mean values of coworker discouragement. This relationship also was examined among worksite means separately for respondents who had tried to quit smoking while working for their current employer, compared to those who had not tried to quit during that time. The correlation was strong only among the overall worksite means but not for the two subgroups, suggesting that this relationship of coworker discouragement to desire to seek help by worksite is relatively complex and may covary with other factors. This relationship needs to be studied further in larger populations where subgroup means can be more reliably estimated and studied with covariates.

Discussion

This study points to marked worksite differences in subjective norms and attitudes toward smoking cessation. The correlation between worksite mean values of coworker discouragement and desire to seek help in future quit attempts, shown in Figure 1, further supports the concept that each worksite is in a sense its own community, a microcosm with distinct social norms. Indeed, these worksite differences

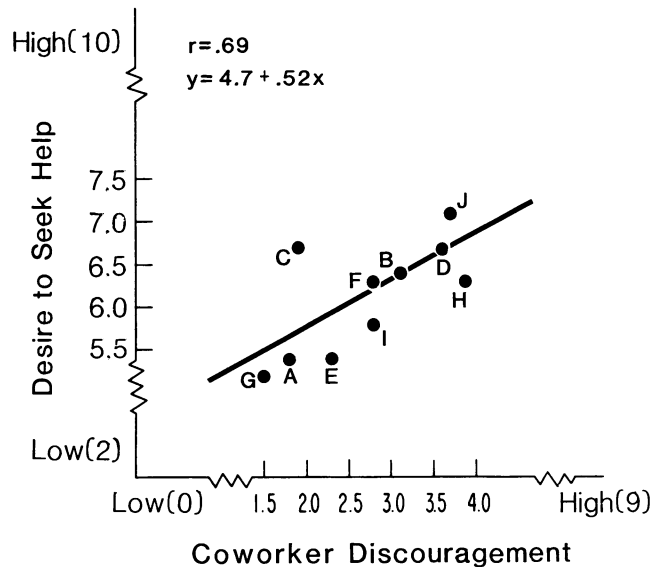


FIGURE 1—Desire to Seek Help by Coworker Discouragement: Worksite Adjusted Mean Values

appear to be more potent than those between occupational categories for, despite the pervasive pattern of occupational differences in smoking prevalence, no occupational differences were observed in coworker support or discouragement of prior quit attempts and attitudes about smoking cessation. Moreover, these worksite differences were not explained by variations in the distributions of age, sex, education, or occupation.

The relevance of the social group also is evidenced by a clustering of smokers in some settings. Overall, trends in the prevalence of smoking by worksite and occupation were reflected in the workers' perceptions of the smoking habits of their immediate coworkers. Yet smokers in professional and managerial jobs were most discrepant in their reports of the per cent of their coworkers who smoke, compared to the actual smoking prevalence among professionals and managers. This discrepancy suggests that smokers residing in social climates intolerant of smoking tend to aggregate in smaller social groups, even within occupational categories. Similar differences by worksite are noted in this clustering effect: among worksites, the tendency for smokers to cluster together is not at all uniform and may be responsive to the broader social climate of that site.

Other researchers have suggested that the work environment is influential in the provision of social support and the transmission of health beliefs that promote or impede smoking cessation.^{13,21,22} Persons with similar concerns, such as smoking cessation, may provide peer support in problem solving, thus rewarding appropriate behavior and punishing inappropriate behavior.^{23,24} Prior investigations also have found that during attempts to quit, positive social support relieves job strain and modifies the impact of job stress on smoking cessation^{7,25} and the number of cigarettes smoked.²⁶ In light of such earlier studies, the worksite and occupational similarities noted in this study in coworker support of past quit attempts and the weak associations of coworker support to attitudes about quitting were unexpected. Rather, these findings suggest the importance of coworkers' explicit lack of support or discouragement of quitting, including offering respondents cigarettes when they are trying to quit, making them feel guilty for unsuccessful quit attempts, and expressing doubt about their ability to quit. Coworker discouragement differed by worksite and was related to diminished confidence in the ability to quit and heightened desire to seek help to quit in the future. In the terminology of learning theory, coworker discouragement may punish and therefore extinguish quitting behavior, with the consequences of that discouragement carrying more power than the potentially reinforcing effect of coworker support.²⁷ The relevance of coworker discouragement also was observed by Elgerot,²⁸ who reported that quit attempts may be hampered by the fear of coworker ridicule if the attempt is unsuccessful. Others have observed that relapses from smoking cessation are most likely to occur in social situations, particularly where there is social pressure to smoke.²⁹⁻³¹

Clearly, further research is needed to validate these findings. The relationships of social norms to attitudes about smoking cessation must be interpreted with caution since they were assessed in cross-sectional data from which causality can only be inferred. Also, the occupational differences among smokers willing to be interviewed may have contributed to the lack of occupational differences observed. Thus, prospective data from a larger sample of worksites are needed to examine the impact of coworker norms on changes in attitudes toward quitting as well as actual success with smoking cessation. In addition to these methodological issues, caution must be exercised in generalizing these findings to other geographic regions since all study worksites were in Minnesota. The state's restrictive policies on smoking and its growing activism for nonsmoking may have influenced the observed smoking attitudes and behaviors.

Despite these caveats, the variations among worksites in norms and attitudes about smoking cessation underline the importance of the unique social milieu of individual worksites. Worksite norms defining quitting smoking as "deviant" are likely to impede efforts to quit smoking and to create a greater need for formal assistance in quitting. Smoking cessation programs offered at the worksite provide accessible aid to smokers who otherwise may not seek out such programs.^{32,33} However, the findings of this study suggest that such programs need to address ways for quitters to cope with coworker discouragement and social pressures to smoke.

To increase the effectiveness of worksite interventions, efforts should target not only individual smokers but also worksite norms about smoking. Given the potential detrimental impact of coworker discouragement of quitting on

both confidence in the ability to quit and the perceived need for formal help with quitting, both nonsmoking and smoking coworkers need to be taught effective ways to support attempts to quit smoking. Thus, educational sessions for nonsmokers can offer information on the problems smokers face when they quit and skills for providing support rather than unintended discouragement. Finally, appropriate worksite policies controlling where smoking is permitted while formally rewarding efforts to quit may be instrumental in further shaping a social climate supportive of nonsmoking.

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Tobacco and Disease Trends, 1921

Within the last 45 years the use of tobacco has increased by 700% in the United States. During this period certain diseases have increased very largely, such as heart trouble, apoplexy and Bright's disease. These are all primarily diseases of the blood vessels. These diseases are much more prevalent among American men from 45 to 60 than among any other nationality in the civilized world. They are much more prevalent among American men than among American women. The long continued use of tobacco has a very marked effect upon the blood vessels of man and animal. Is it a mere coincidence that the increase in these diseases goes along with the increased use of tobacco or not? Is it a mere coincidence that American men who use more tobacco than American women are much more susceptible to these diseases or not? Is it a mere coincidence that Americans who use much more tobacco per capita than the English should be affected by these special diseases? . . . If tobacco is a serious injury to our public health the fact should be determined in a scientific way and proper measures taken by health authorities along lines of prevention.

—Holmes PK: Tobacco in its relationships to public health. *Am J Public Health* 1921;11:793-795.